

Section some related information found. There appears to be no direct correlation of the Applicant's Invention Claims 23 to 27 and to any claims found in the Prior Art. In fact, there appears to no mention of the Prior Art Claims, in Examiner's Paper #8, dated 07/17/02. In addition, Prior Art specification's are written in a form of a claims; but, the information written in the Paper # 8 is different from the Applicant's claims, see Paper #8, page 3 and 4. It is a mixture of the Applicant's Claims and Prior Art Specifications.

Reconsideration of the rejection of Claims 23, 25 and 27 under 35 U.S.C. 103(a), as being unpatentable over Jeng et al. (U.S. Patent No. 6,114,186) in view of Lucas et al. (U. S. Patent No. 6,287,951), is requested, based on the following.

Politely disagree with the Examiner's Paper #8, dated 07/17/02, beginning with page 4, line 3, of an analysis of the prior art of Jeng et al. '186 and the Applicant's Invention Claims.

There are differences between the Prior Art cited and the Applicant's invention, namely the following.

ref. p. 4, line 3, the Applicant's curing conditions are not:
" 300 °C by a hot plate bake ... " (col. 4, lines 39-42)

The Applicant's curing conditions are:

"24. Th method of claim 23, wherein said low dielectric constant material is spun on dielectric, deposited to a thickness of about 4,000 to 12,000 Angstroms, with curing conditions at 4000C for 1 hr., in a nitrogen ambient gas flow from about 1 to 30 SLM, oxygen less than 10 ppm."

ref. p. 4, lines 7, the Applicant's stabilizing material is not:
"by plasmas with a thickness of about 1,000-3,000A" (col. 4, lines 42-60)

The Applicant's stabilizing material is:

"26. The method of claim 25, wherein said layer of adhesion promoter and stabilizer is silicon nitride, deposited by plasma enhanced chemical vapor deposition to a thickness of between about 200 and 500 Angstroms."

The PE CVD specific method claimed and thickness range differs from Prior Art.

ref. p. 4, lines 8, the Applicant's cap silicon oxide is not:
"cap silicon oxide layer (22) by PECVD with a thickness about 16,000 A"

The Applicant's cap silicon oxide is:

"27. The method of claim 23, wherein said silicon oxide cap layer is deposited by plasma enhanced chemical vapor deposition, to a thickness of between about 4,000 to 16,000 Angstroms."

In fact, the Jeng reference above is misquoted in Paper #8.

Please refer to Jeng et al. '186, Col. 4 line 61, "The cap layer 20 may be followed by a thick, about 16,000 A, SiO₂, interlayer dielectric 22..."

Furthermore, Please refer to Jeng et al. '186, Col. 4 lines 54 and 55, "The thickness of the cap layer is preferably about 1,000 to 3,000 A, and most preferably about 2,000 A."

Lucas et al. (U. S. Patent No. 6,287,951), primarily focuses on forming hardmask and antireflective layer with silicon nitride a totally different application than the Applicant's Invention. The placement in the process for the "Lucas' nitride", is not to be used as a "stabilizer and adhesion promoter" on low dielectric material, as is the Applicant's.

Reconsideration of the rejection of Claim 24 under 35 U.S.C. 103(a), as being unpatentable over Jeng et al. (U.S. Patent No. 6,114,186) in view of Lucas et al. (U. S. Patent No. 6,287,951), as applied to claims 23, 25, 27, further in view of You et al (U.S Patent No. 6,197,703) is requested, based on the following.

"24 The method of claim 23, wherein said low dielectric constant material is spun on dielectric, deposited to a thickness of about 4,000 to 12,000 Angstroms, with curing conditions at 4000C for 1 hr., in a nitrogen ambient gas flow from about 1 to 30 SLM, oxygen less than 10 ppm." (ref. Applicant's Claim 24)

Agree with the Examiner that Jeng et al. '186 in view of Lucas above, do not specifically show curing conditions above. Furthermore, both Jeng et al. '186 and You et al (U.S Patent No. 6,197,703), are primarily concerned with processing HSQ material. This seems vastly different the above Claim 24, "low dielectric constant material is spun on dielectric,". The Applicant's Claims do not mention, nor claim, "HSQ".

Reconsideration of the rejection of Claim 26 under 35 U.S.C. 103(a), as being unpatentable over Jeng et al. (U.S. Patent No. 6,114,186) in view of Lucas et al. (U. S. Patent No. 6,287,951), as applied to claims 23, 25, 27, further in view of Jeng et al (U.S Patent No. 5,818,111) is requested, based on the following.

Again, there is a question of obviousness in Paper #8, and it is related to the use of nitride as a protection layer over HSQ. The material "HSQ" is never mentioned neither in the

Applicant's Specifications, nor in the Applicant's Claims. Most of the Prior Art cited in Paper #8 are concerned with processing HSQ material. This seems vastly different than what the Applicant claims, in Claims 23 - 27.

In conclusion, for state-of-the-art advanced applications in silicon technology, the applicant's invention is believed to be patentable over these various references, because there seems to be insufficient basis for concluding that the modification of Prior Art disclosures would have been obvious to one skilled in the art. That is to say, there must be something in the prior art or line of reasoning to suggest that the combination of these various references is desirable. We believe that there is no such basis for the combination.

All rejected claims 23 - 27 are now believed to be in allowable condition, and allowance is so requested.

The Examiner Thanh T. Nguyen is thanked again for carefully examining and reviewing the subject Patent Application. With entry of this response to the Office Action, all claims are now considered to be in condition for allowance.

It is requested that should there be any problems with this response to the Office Action, please call the undersigned Attorney at (845) 452-5863.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'SBA', with a long horizontal flourish extending to the right.

Stephen B. Ackerman, Reg.No. 37,761